

Examination of the blood showed hemoglobin 88 per cent (15 gm. per 100 cc.). Erythrocytes numbered 4.3 million and leukocytes 10,300 with normal distribution of polymorphonuclear cells, lymphocytes, stabs, segmented cells and monocytes. A Wassermann test of the blood was negative. Urinalysis was normal.

The diagnosis of recurrent appendicitis was made and the patient was observed closely. On February 26, 1947, she was operated upon. The appendix, which was elongated and moderately broad, lay retrocecal and was completely bound down to the posterior surface of the cecum by dense adhesions. It was surrounded by moderate inflammatory reaction. The uterus was retroverted and there was moderate relaxation of the supporting ligaments. A cyst measuring 3 x 4 x 3 cm. was found in the left ovary. The cervix was moderately eroded and everted.

Operation consisted of uterine suspension, ovarian cystectomy, appendectomy, and conization of the cervix.

Pathological Report: The appendix was 5 cm. in length and 0.7 cm. in thickness at each end. In the distal third there was a localized fusiform swelling involving the entire appendiceal wall and measuring 1.2 cm. in thickness. At the swelling the wall was yellow, the lumen being obliterated by firm, yellow-white mucoid-appearing material. Microscopic examination of sections showed the serosal surface to be intact. It was covered with flattened spindle-shaped cells. The subserosal connective tissue was sparse but in some areas contained dilated blood vessels engorged with blood. Longitudinal and circular muscular coats were well defined, but the mucosa was totally altered by the presence of a tumor made up of large, rounded islands of cells. Between these islands were elongated, irregularly shaped strands and columns of tumor cells packed fairly closely together and infiltrating the stroma without limits. These cells had invaded the muscular walls in many places, and in one area were present in the subserosal connective tissue adjacent to the serosa. Wherever seen the cells were similar in character, being fairly small and round, with scanty cytoplasm and round to ovoid nuclei which were dark staining, with discrete nuclear membranes and dusty particles of chromatin material dispersed throughout the nucleus. Some contained fairly well defined, slightly irregularly outlined nucleoli in their central portions. Mitotic figures were not observed.

Diagnosis: Argentaffinoma (carcinoid), appendix.

The patient made a very satisfactory recovery and was dismissed from the hospital on the sixth postoperative day. Examined every two months since leaving the hospital, she has had no complaints other than of an occasional pain in the right lower quadrant, where slight tenderness has persisted. Otherwise the abdomen appears to be normal.

COMMENT

These rare tumors of the appendix are of interest to the surgeon because of the differential diagnosis, and because they may be the source of a metastatic lesion, the treatment of which may be somewhat of a problem, with necessity for fairly close observation of the patient for many years. The great majority of the patients are completely cured by removal of the carcinoid tumor.

As a rule a carcinoid tumor behaves in a benign manner, although it may infiltrate the wall of the appendix. It may, however, metastasize to the regional lymph nodes and also to the liver. Metastasis is more likely to occur from a carcinoid tumor in the small intestine than from one arising in the appendix. Metastases are, however, always slow to occur and slow to cause termination. Boyd states metastatic lesions have been found as late as 20 years after a carcinoid tumor was removed.

Many of the cells of a carcinoid tumor contain granules which stain black with silver salts (argentaffin) and yellow with chromium salts (chromaffin). A relationship exists between carcinoid tumors and argentaffin-cell neuromas. Apparently the paraganglionic cells in the plexus of Meissner and Auerback have something to do with the origin of the tumor. Some believe that this may be the origin of the so-called "neurogenic appendix."

Corner Massal and Saratoga Avenues.

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Disseminated Coccidioidomycosis: Isolation of Causative Organism from the Urine

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IN the case of disseminated coccidioidomycosis which is reported here, a very unusual feature occurred which, to the best knowledge of the authors, has never been reported previously.

CASE REPORT

A 27-year-old negro male was admitted to the Oakland Veterans Administration Hospital January 28, 1947. The patient was born and reared in Paris, Texas. He served in the Army from February, 1942, to August, 1944, most of the time in Louisiana. He had no overseas service. The past history was negative except for syphilis contracted in 1942 and treated for six months with mapharsen and bismuth with subsequent negative results of blood and spinal fluid examinations. A review of Army medical records revealed repeatedly negative chest roentgenograms. Upon release from the military service the patient came to Oakland, California. In the latter part of 1946 he moved to Madera, California (located in the San Joaquin Valley), where he worked as a crop picker up to the time of the present illness which began December 1, 1946, with chills, fever, cough, and right chest pain. He was treated at a local hospital for right lower lobe pneumonia with penicillin and was discharged January 1, 1947. He continued to feel weak, and had a cough productive of small amounts of green sputum. On admission to the Oakland Veterans Administration Hospital the temperature was 102° F., pulse rate 110, respirations 24 per minute and blood pressure 100 mm. of mercury systolic, 60 mm. diastolic. The patient appeared acutely ill and showed evidence of considerable weight loss (height 73 inches, present weight 135 pounds, average weight 152 pounds). No palpable lymph nodes were present. The lungs were clear to percussion and auscultation and the remainder of the physical examination was negative. The routine and follow-up laboratory data are shown in Table 1. The Kahn test of the blood was negative. The blood urea nitrogen was 12 mg. per 100 cc. A roentgenogram of the chest, taken on admission, was reported as follows: "The cardiac shadow appears normal. Both lung roots are moderately prominent and there are some faint exudations in the right mid-lung field with an area 1 cm. in diameter which may represent a cavity. On

From the Medical Service, Oakland Veterans' Hospital.

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TABLE 1.—Results of Sputum, Urine and Blood Examinations for *Coccidioides*

Date	RBC (Million)	Hgb. (Gm.)	WBC	Sed. Rate mm./hour	Urine Sediment (cells/ h.p.f.)	Urine Culture	Sputum	Tbl. Skin Test	Cocci- dioides Skin Test†	Cocci- dioides Compl. Fixation	Blood Culture
Jan. 28	3.65	10.9	9,200	119	1- 3 RBC	.....	Neg.	.....	.....	.....	.....
Feb. 1	.....	.....	.....	.....	8-10 RBC	.....	Neg.	.....	.....	.....	.....
Feb. 3	.....	.....	.....	.....	.....	.....	Neg.	1:1000	1:1000	.....	.....
Feb. 10	3.6	10.6	13,600	.....	.....	.....	Neg.	.....	.....	.....	.....
Feb. 14	2.85	9.4	8,600	.....	.....	.....	Neg.	.....	.....	.....	Neg.
Feb. 22	.....	.....	.....	.....	.....	.....	.....	.....	1:100	.....	.....
Feb. 24	.....	.....	.....	.....	.....	.....	.....	.....	.....	+++1:128 +1:256†	.....
Mar. 3	.....	.....	.....	.....	.....	.....	+C. immitis	.....	.....	.....	.....
Mar. 13	.....	.....	.....	.....	.....	.....	.....	.....	1:10 Neg.	.....	.....
Mar. 14	2.65	8.6	24,600	.....	Loaded RBC	+C. immitis*	.....	.....	.....	.....	.....
Mar. 17	.....	.....	.....	.....	.....	.....	.....	.....	Undil. Neg.	.....	.....
Mar. 21	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	+C. immitis

*Positive cultures both at Oakland Veterans Administration Hospital and at Stanford University Laboratory.

†Facilities of the coccidioidomycosis study, Commission on Acute Respiratory Diseases, Army Epidemiological Board at Stanford Medical School.

lateral projection these are seen to lie posteriorly in the upper portion of the right lower lobe." Subsequent roentgenograms of the chest on February 12 and February 24 showed no essential change.

The patient had a temperature ranging daily from 99° F. to 104° F. during the entire period of hospitalization.

On February 17 a firm and non-tender small lymph node was noted at the angle of the right mandible. This was removed for biopsy and the pathological report was as follows: "The specimen consists of a firm, irregular mass 18 x 18 x 15 mm., the outer surface of which has numerous connective tissue tags and small fat lobules. The cut surface shows considerable variation in configuration, some areas being firm, white, and semi-translucent and others opaque and hemorrhagic. Microscopically, the lymph node contains numerous localized areas of granulomatous structure in which there is moderate central necrosis, an outer zone of lymphoid tissue, and an intermediate zone of increased epithelioid formation. Among the latter there are numerous giant cells. Scattered throughout the granulomata there are numerous large double-walled structures containing numerous endospores. In addition there are many small isolated endospores characteristic of *Coccidioides*."

Results of sputum, urine, and blood examinations for *Coccidioides* are shown in Table 1. On March 4 the patient developed tenderness over the mid-sternal region. Enlarged lymph nodes appeared in the right axilla. By March 10 a definitely fluctuant mass had developed in the mid-sternum opposite the third rib. However, roentgenograms of the sternum taken at this time were normal. X-ray films of the thoracic and lumbar segments of the spine, knees, ankles, and abdomen, were all reported as negative. As no specific treatment for disseminated coccidioidomycosis is known, vaccine treatment was attempted although little hope was held for benefit. The patient also received repeated blood transfusions, but the course was progressively downhill and he died March 22, 1947.

POSTMORTEM EXAMINATION

The body was that of an undernourished, slender, negro male, measuring 6 feet 3 inches in length, and estimated to weigh approximately 100 pounds. There was a soft fluctuant mass just below the xiphoid, which, on palpation, had some bony crepitation. There was a second small fluctuant mass over the xiphoid process. Each was approximately 4 cm. in diameter. There was considerable wasting of the soft tissues.

Subcutaneous fat was negligible. The lower border of the liver was 4 cm. below the costal margin. The two small fluctuant masses on the sternum were found to be abscesses filled with thick, green, purulent exudate. Smears showed typical *Coccidioides* spherules. In each instance the bone was eroded. The upper lesion had completely destroyed the bone on both sides of the sternum, but had not perforated the soft tissues on either side. The lower lesion involved only the anterior table of the sternal structure.

Heart: The heart weighed 250 gm. A few small, pinpoint, white tubercles were seen through the pericardial surface. Similar depositions were observed in the myocardium and shining through the endocardium. These were minute and sparse. The muscle was pale but firm.

The right lung weighed 1,500 gm., the left 1,250 gm. The pleural surfaces were smooth, but shining through the pleura on either side were innumerable small white tubercles. The tissue, the consistency of liver, was readily cut, and innumerable small tubercles were observed on the sectioned surfaces, in all portions of the lung. There was no evidence of bronchial distribution of the tubercles, but no portion of the lung had escaped. The major bronchi did not contain exudate, and no localized abscesses were seen in the pulmonary tissues. The mediastinal lymph nodes were enlarged, particularly those in the upper portion of the mediastinum anteriorly. One of the nodes in this region was sectioned, and considerable purulent fluid exuded into

the pleural cavity. Other abscesses were found in the lymph node chain extending from the extreme upper limits of the mediastinum down to the diaphragm. The largest of these nodes was approximately 3 cm. in its greatest diameter.

Liver: The liver weighed 1950 gm. The border was rounded and the surface slightly nodular and rough, with the gross appearance of cirrhotic liver. The sectioned surface everted moderately, was resistant to cutting and appeared to be cirrhotic. In addition, there were small white, discrete tubercles scattered throughout all sectioned surfaces. The gallbladder and bile ducts appeared to be normal.

Spleen: The spleen weighed 240 gm. It was pale in color, the borders were rounded, and the tissue was moderately flabby. On the sectioned surface, as well as shining through the peritoneal surface, there were many small white tubercles. The sectioned surface everted moderately, and in several areas there were localized accumulations of thick, green pus in abscesses approximately 6 mm. in diameter.

Pancreas: The pancreas was normal in size and shape. Along the upper border of the pancreas, in the line of blood vessel drainage from the spleen toward the celiac axis, there was a group of enlarged lymph nodes, some of which contained a large amount of greenish exudate. This chain of nodes extended from the tail to the head of the pancreas.

Adrenals: The adrenals were normal in size, color, and consistency. In one adrenal in the medullary portion there was an aggregation of gray material.

Genito-Urinary Tract: The right kidney weighed 270 gm., the left 250 gm. The sectioned surface everted moderately, and was pale in color, but the line of demarcation between cortex and medulla was sharp. Studded throughout the parenchyma in both cortex and medulla were numerous small, white aggregations of material. No exudative material was found. The pelves and ureters were normal-appearing, as were the bladder, prostate, and external genitals.

Vertebral Column: There were accumulations of fluctuant masses adjacent to the bodies of the vertebrae from the seventh dorsal to the first lumbar. These were most numerous along the left side, and in four distinct areas the purulent exudate was in direct continuity with the cancellous portions of the bodies of the vertebrae. There was such an abscessed cavity on both sides of the 11th dorsal vertebrae. No evidence of extension of the exudate into the psoas muscle sheath was demonstrated.

Central Nervous System: The convolutions of the brain were normal in size and the sulci were not broad. There was no evidence of meningeal exudate or localized deposition of inflammatory material. The surface of the brain was washed and carefully examined, but no evidence of "tubercles" could be seen. The base of the brain was particularly examined, but no pathologic changes were recognized grossly.

Microscopic Examination: Microscopic examination of the lungs, heart, liver, spleen, pancreas and adjacent lymph nodes, adrenals, kidneys, subcutaneous tissue and central nervous system revealed inflammatory changes with spherules characteristic of *Coccidioides*.

DISCUSSION

The patient's place of residence immediately made coccidioidomycosis a consideration in diagnosis, but with the subsequent negative skin tests, adenopathy, and urinary findings, a lymphoma was considered a much more likely

possibility. However, with the pathological report of the lymph node biopsy all investigative procedures were turned toward the study of coccidioidomycosis. This resulted in the finding of a positive complement-fixation and in the subsequent recovery of the organisms from the sputum, the urine, and terminally from the blood stream. It is not too uncommon to recover *C. immitis* in blood cultures taken within 24 hours of death in cases of disseminated coccidioidomycosis. However, it is definitely rare to find the organisms in the urine. To the best knowledge of the authors this has never been reported in the literature. The physician who examined the urine had never before isolated the fungus in the urine.*

SUMMARY

1. A case of disseminated coccidioidomycosis is presented with involvement of the lungs, lymph nodes, bone, liver, spleen, kidneys, heart, adrenals, and brain.

2. *C. immitis* was cultured from the sputum and urine during the course of the patient's hospitalization. A blood culture within 24 hours of death was also positive.

3. The unusual feature of this case, which is believed to be unreported previously, is the identification of *C. immitis* in the urine.

*C. E. Smith: Personal communication.

Urethral Diverticulum with Calculi in Women

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CALCULI complicating urethral diverticulum in women is rare, approximately 40 such cases having been reported. The case here reported is that of a woman aged 47 years with such a condition producing typical local symptoms and recurrent cystitis.

ETIOLOGY

The following, adapted from Johnson,³ summarizes the present concept of etiology.

- | Acquired | Congenital |
|---|---|
| 1. Trauma of childbirth | 1. Gärtner's duct |
| 2. Infection of urethral glands with sealing off of opening to urethra, formation of abscess and reestablishment of communication | 2. Cysts formed from faulty union of primal folds |
| 3. Instrumentation of urethra, especially deep fulguration of urethral lesions. | 3. Cell rests |
| 4. Secondary to urethral stricture | 4. Wolffian duct |
| 5. Secondary to urethral stone | 5. Vaginal cysts |

Johnson personally believed the majority of diverticula to be congenital in origin, either present in situ as such, or developing from congenital cysts which acquire an opening into the urethra by trauma or infection, or from infected glands of the middle third of the urethra which are there as an anomaly, according to Cabot and Shoemaker.⁴ However, in regard to the last possibility, Lintgen and Herbut⁵ in examination of 100 female adult urethras found glands in every case in the anterior urethra and in 65 per cent of the posterior female urethras. This would suggest that infected

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